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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,345	01/11/2002	Yasuaki Tanaka	991482A	6310
23850	7590	04/13/2004	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			KIM, PETER B	
1725 K STREET, NW			ART UNIT	
SUITE 1000			PAPER NUMBER	
WASHINGTON, DC 20006			2851	

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,345

Applicant(s)

TANAKA, YASUAKI

Examiner

Peter B. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41,42,46,52-55,59,75-77,85 and 90-93 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41,42,46,52-55,59,75-77,85 and 90-93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/469,229.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 22004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Applicant's arguments filed on Mar. 9, 2004 have been fully considered.

Claim Objections

Claim 52 is objected to because of the following informalities: "energy bean" should be "energy beam." Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 92 and 93 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The written description discloses that "the transmittance (attenuation factor) T of the projection optical system PL is lowered gradually, once it has been recovered to a great extent after suspension of the irradiation with the ultraviolet pulse." However, claims 92 and 93 claim that only the degree of recovery gradually decreases, which suggests that the as time passes the rate of recovery is slowed, not that the actual transmittance is decreased, as disclosed in the written description.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 41, 42, 46, 52-55, 59, 75-77, 85, and 90-93 are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi (5,892,573).

Takahashi discloses a method for scanning exposure of a pattern formed on a mask (R) onto a substrate (W) through a projection optical system (10). A light quantity of a portion of exposure light from an illumination optical system is detected using a first light detecting means. A second light receiving means then detects the light quantity of exposure light passed through a transmitting portion of a movable stage. The first light receiving means is detected on a plane conjugate with the reticle, while the second light receiving means is conjugate with the wafer. The sensitivity of the first light detecting means is then corrected on the basis of detected values of first and second light receiving means, δ corresponds to the transmissivity change in the illumination optical system and is stored in the calculating means as the sensitivity coefficient for the second step (col. 12, lines 1-17). Takahashi teaches obtaining function of an attenuation factor by measuring transmittance of the projection optical system at different intervals of the pulse emission (col. 8, lines 1-44 and col. 9, line 27-col. 11, line 50). Thus, in obtaining the attenuation function at various intervals suggest that the attenuation factor recovery of the optical system is inherently included in Takahashi's function. The exposure process may be performed while scanning the reticle and the wafer. The exposure light comprises excimer laser light, such as deep ultraviolet light (col. 1, lines 26-27). (see col. 15, line 11 – col. 16, line 63). Col. 11, lines 58-67 teach if the area of the transmissive portion of the circuit pattern of the mask is small,

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such as a contact hole, the transmissivity change of the projection optical system is small. For the sensitivity correction it may be sufficient to monitor only transmissivity variation of the illumination optical system. The exposure process may also comprise detecting a first ratio between the values of the first and second light receiving means in a state in which the reticle is not disposed in the path of the exposure light (interruption), detecting a second ratio between the detected values of the first and second light receiving means in a state when the reticle is disposed in the path of the exposure light and detecting a third ratio between the detected values of the first and second light receiving means in a state after at least one exposure process. The reticle is then disposed in the path of the exposure light and the sensitivity of the first light receiving means is corrected on the basis of the first second and third ratios. As explained above, the fluctuation of attenuation factor of the projection optical system while the mask is moving relative to the energy beam is obtained. Takahashi discloses detecting the energy beam between the light source and the mask (12) and detecting the energy after it has passed through the projection optical system (13) and obtaining the function use the results of both detections (col. 8, lines 1-63).

Response to Arguments

Applicant's arguments filed Mar. 9, 2004 have been fully considered but they are not persuasive. Applicant argues that the cited reference does not teach a function of an attenuation factor recovery of the projection optical system; however, the attenuation factor recovery of the projection optical system is a part of the calculation in determining exposure quantity as taught by Takahashi (col. 8, lines 1-44 and col. 9, line 27-col. 11, line 50).

Conclusion

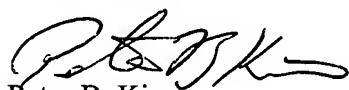
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on Monday-Thursday from 8:30 AM to 6:00 PM. The examiner can also be reached on alternate Fridays during the same hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 571-272-2112. The fax phone numbers for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571 -272-2800.



Peter B. Kim
Patent Examiner
March 31, 2004